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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,956	11/26/2001	Yong Sung Ham	049128-5038	5243

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EXAMINER

LIU, MING HUN

ART UNIT PAPER NUMBER

2675

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/991,956

Applicant(s)

HAM, YONG SUNG

Examiner

Ming-Hun Liu

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. In reference to independent claims 1, 6 and 15, the term “modulated data band” is indefinite and lacks a clear antecedent basis. It is unclear as to what data is being modulated and as to how a band is related to his modulated data. And finally to clear up the issues with the look-up table, the examiner suggests changing the language to read “of the look-up table” or “within the look-up table” where appropriate to clarify the horizontal and vertical relations.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 6, 12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,501,451 to Sakashita.

In reference to claims 1, 6 and 15 Sakashita teaches a method of driving a liquid crystal display where a modulated data loop up table is used (figure 8 and column 6, lines 54-60. Sakashita derives a modulated data that includes a modulated data having a gray scale approximately corresponding to a gray scale value of the source data (column 6 lines 56-57 and column 8, lines 24-25). By referring to figure 8, it is clear that several modulated data are adjacent to the one modulated data In horizontal and vertical directions. Two approximations (figure 8 and column 8 lines 23-26), namely using only certain significant digits of the signal data in the horizontal (Upper 4 bit approximation) and vertical (lower 4 bit approximation) are used to derive a approximate modulated data not registered in the look-up table as the new modulated signal (column 6, lines 58-60).

In reference to claim 2, Sakashita teaches that the input signal is delayed by one frame (column 7, line 19).

In reference to claim 12, it can be seen from figure 2 that a single frame memory is used to delay the LSB and MSB of the data.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 7, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakashita.

In reference to claims 3 and 8, referring to Sakashita's first embodiment and his background disclosure, one skilled in the art understands that same bit (either all or limited to MSB) is most intuitive and well-accepted method practiced in the art. The circuit found in figure 1, allows Sakashita's invention to compare MSB data between current and previous frames. One skilled in the art would have used most significant bit comparison because it is a simple method to quickly estimate grayscales changes.

In reference to claim 7, Sakashita invention includes a single memory unit, instead of the two distinct memories claimed. It would have been simple to modify Sakashita's invention to resemble that of applicant's by including separate memory unit for the LSB data. One skilled in the art would have been motivate to separate the memory units so that the LSB and MSB data could be more easily modified separately.

As to claim 11, the circuits described in the claim are all circuits inherent to the functionality of the device. One skilled in the art understands that without a data drive and gate driver and timing control unit, liquid crystal displays would not function properly. Such circuits are inherent to the LCD art and thus cannot be considered novel.

Art Unit: 2675

*Allowable Subject Matter*

7. Claims 4, 5, 9, 10, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and after clearing the 112 2<sup>nd</sup> paragraph rejection of its independent claims.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
8-2-2004

Ming-Hun Liu